

Application No.: 09/885,937
Art Unit 2637

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Amendments to the Specification

Please replace the following numbered paragraphs with these amended paragraphs:

[05] However, many practical applications require not only a simple 1 :M or N: 1 Sampling sampling rate conversion, but rather a general M:N rate conversion. Since the sampling locations of input and output data are different, and the up or down sampling step needs to be performed depending on the values of M and N, a M:N decimator is combined with a linear interpolator forming a general format converter (GFC). FIG.2 illustrates the structure of a GFC, and an example of a 3: 2 down sampling process. As shown in FIG.2, since the sampling locations of input and output data are not identical. The output data are calculated by interpolating two adjacent input samples (or data).

[06] A digital filter is an essential component in the process of changing display modes or image formats having various sizes, and the coefficients of the filter must be changed depending on the sizes of input and output data. Therefore, digital televisions, wherein the output sizes and display modes are frequently changed, require an automatic filter coefficient generator. Filter coefficient generator generators according to the prior art, however, is are not

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able to timely generate filter coefficients necessary for the changes such as display modes and image formats. Therefore, the image quality may be impaired in a transition period.

[11] In another aspect of the present invention, ~~An an~~ apparatus for generating high-pass or band-pass FIR filter coefficients using more than one low-pass filter coefficient generating devices having different desired cutoff frequencies is disclosed. The apparatus includes at least two low-pass filter coefficient generating devices each of which is shown as a first embodiment of the present invention; and an adder coupled to the devices for generating an nth high-pass or band-pass filter coefficient by adding or subtracting each of nth low-pass filter coefficients generated by each device.

[17] FIG.2 illustrates the structure of a GFC and an example of a 3: 2 ~~Down down~~ sampling process;

[22] Filters used for sampling rate conversion caused by display mode and image format changes generally require low-pass characteristics, and the values of filter coefficients must be promptly updated based on the rates of input and output data. However, the present invention is not only limited only to low-pass filters, but rather involves with general filters that include any one

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of low-pass, high-pass, and band-pass characteristics.

[25] In a windowing method, which is widely used to get finite impulse response (FIR) function, a limited number of filter coefficients are obtained by multiplying the impulse response function values by a limited number of window function values as follows:

$$g(n) = h(n) * w\left(n + \frac{N-1}{2}\right)$$

where N represents the number of filter taps which is generally deemed equal to the number of FIR filter coefficients.